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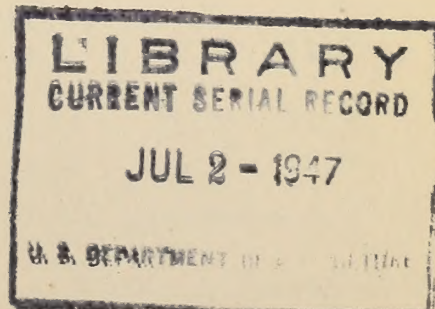
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REPORT ON STORAGE QUALITY OF BUD SPORTS
OF ROME BEAUTY AND STAYMAN WINESAP APPLES

By

M. H. Haller, Pomologist

Beltsville, Maryland
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Apples for these tests were obtained from the H. F. Byrd Orchard at Berryville, Virginia. Rome Beauty, Seeando Rome and Rome No. 262 were picked on October 4, 1946. Stayman Winesap, Stamared, Scarlett Stayman and Stayman No. 201 were picked on October 8, 1946. Four bushel boxes of each bud sport were packed in the orchard (2 without oiled paper and 2 with 1/2 pound each of shredded oiled paper). The apples were trucked to Beltsville, Maryland, where 2 boxes (one without and one with oiled paper) of each kind were immediately stored at 31°F.; the other 2 boxes were stored at 50° for 10 days, then at 36° for 10 days and finally at 31° for the remainder of the storage season. In the latter part of their normal storage season the apples were removed from cold storage and exposed to room temperatures (70°) for 4 to 5 days. The fruit was inspected on removal from cold storage and again after the period at room temperature. Only the results after the period at room temperature are presented in the tables. Results for earlier seasons ^{1/} (1940 and 1942) when the same bud sports were obtained from the same source are also presented in order to summarize the evidence.

Rome Beauty and Bud Sports

The firmness of the fruit as shown by pressure tests at harvest and after storage is given in table 1 for three seasons. The results indicate that the Seeando sport may be slightly firmer at the same picking date and also after storage than the standard variety or No. 262. There was little difference between Rome Beauty and No. 262 when picked, but No. 262 was slightly softer and more mealy after storage.

Table 1. Firmness (pressure test in pounds) of Rome Beauty and sports

Variety	Time	Seasons of			Average
		1940 Oct. 14	1942 Oct. 3	1946 Oct. 4	
Rome Beauty	At Harvest	18.2	---	17.7	18.0
Seeando	" "	18.7	---	18.8	18.8
Rome No. 262	" "	18.2	---	18.1	18.2
		Mar. 11	Mar. 11	Apr. 9	
Rome Beauty	After storage	10.8	11.1	11.6	11.2
Seeando	" "	11.5	11.3	11.7	11.5
Rome No. 262	" "	10.8	10.4	11.2	10.8

^{1/} Taken from H. T. & S. Office Report No. 137, "Storage quality of some bud sports of Delicious, Rome Beauty, Stayman Winesap, Winesap, and Jonathan apples. Mark H. Haller, January 26, 1944.

Table #2. Condition of Rome Beauty and sports after storage at 31° F. and 5 days post-ripening at 70°. 1946 Crop.

Variety	Treatment		Sound Percent	Decay Percent	Spot Percent	Scald			Market Condition
	Temp. ° F.	Oiled Paper				Sl. Percent	Med. Percent	Bad Percent	
Rome Beauty	31	No.	75.9	0	0	16.9	7.2	0	Good
	31	Yes	56.9	0	0	38.6	4.5	0	Good
50-36-31	31	No.	27.0	2.2	1.1	39.3	18.0	12.4	Fair to Poor
50-36-31	31	Yes	<u>62.7</u>	<u>0</u>	<u>1.1</u>	<u>36.2</u>	<u>0</u>	<u>0</u>	Good
Average:	---		55.7	0.5	0.5	32.8	7.4	3.1	
Seeando	31	No.	81.7	1.2	2.4	13.5	1.2	0	Good
	31	Yes	63.5	0	1.4	32.4	2.7	0	Good
50-36-31	31	No.	26.1	6.8 ^{1/}	1.1 ^{2/}	28.5	17.0	20.5	Poor
50-36-31	31	Yes	<u>78.9</u>	<u>0</u>	<u>0</u>	<u>21.1</u>	<u>0</u>	<u>0</u>	Good
Average:	---		62.6	2.0	1.2	23.9	5.2	5.1	
Rome #262	31	No.	85.6	0	0	11.8	1.3	1.3	Good
	31	Yes	75.7	0	0	22.9	1.4	0	Good
50-36-31	31	No.	64.8	0	1.4	27.0	6.8	0	Good
50-36-31	31	Yes	<u>90.4</u>	<u>0</u>	<u>4.1</u>	<u>5.5</u>	<u>0</u>	<u>0</u>	Good
Average:	---		79.1	0	1.4	16.8	2.4	0.3	

^{1/} Some additional decay among badly scalded apples.

^{2/} Severe shrivelling

At the time of removal from cold storage there was practically no storage disorder apparent in any of the lots. After 5 days exposure to 70° considerable scald developed in most lots as shown in table 2. Under all storage conditions Rome No. 262 was less subject to scald than either the standard Rome or Seeando Rome. As the scald was mostly slight the lots were generally in good marketable condition.

The results for the 1946 season are consistent with those previously obtained in 1942 (table 3) in which Rome No. 262 developed less scald than other varieties. In 1940 there was no scald, and not enough other storage disorders developed to be significant, but here again Rome No. 262 was slightly superior to the other varieties in keeping quality.

Table 3. Average total spoilage of Rome Beauty and sports during storage at 31°-32°F. and post ripening at 70°.

Variety	Total spoilage in			Average
	1940	1942 ^{1/}	1946 ^{1/}	
Rome Beauty	3.2	37.5	44.3	
Seeando	4.0	38.0	37.4	
Rome No. 262	1.0	17.0	20.9	

^{1/} Spoilage primarily scald in 1942 and 1946 seasons.

The fact that No. 262 appeared more mealy after storage and was less subject to scald suggests that it may be somewhat earlier in maturing than Seeando and regular Rome, and that slightly earlier harvest may be desirable.

Stayman Winesap and Bud Sports

The results in Table 4 do not show any consistent difference in firmness among these Stayman sports. Although the pressure test does not indicate that No. 201 differed in firmness from the other varieties it did seem to have a firmer, finer grained flesh than the others when eaten.

Table 4. Firmness (pressure test in pounds) of Stayman Winesap and sports.

Variety	Time	Season of			Average
		1940 Oct. 13	1942 Oct. 3	1946 Oct. 8	
Stayman Winesap	At harvest	---	---	15.3	---
Stamared	"	16.6	---	16.4	16.5
Scarlett Stayman	"	16.1	---	16.1	16.1
No. 201	"	15.9	---	16.7	16.3
Stayman Winesap	After storage	Mar. 5	Mar. 18	Apr. 10	
		---	9.7	10.5	10.1
Stamared	"	10.2	8.9	10.6	9.9
Scarlett Stayman	"	10.2	8.9	10.2	9.8
No. 201	"	9.9	8.7	10.9	9.8

Some scald and other disorders were apparent when the lots were removed from 31°F. storage. The scald and other disorders were accentuated after 4 days at 70°. The results are shown in table 5. Slight scald did not seriously detract from the appearance of the fruit and should not be given as much weight as more severe scald or other disorders such as decay or breakdown. According to these results No. 201 (the most highly colored of the sports) was distinctly superior to the other sports and the regular Stayman Winesap in storage quality, having less medium to severe scald and less decay and breakdown.

These results, however, are not entirely consistent with earlier results (table 6) as apples of sport No. 201 from the 1940 crop developed more total spoilage (primarily breakdown) than did apples of the other two bud sports under test as shown in table 6. In 1942 total storage disorders of No. 201 were less than in the regular Stayman but did not differ appreciably from those in the other bud sports.

Table 5. Condition of Stayman Winesap and its sports after storage at 31°F. and post-ripening for 4 days at 70°. 1946 crop.

Variety	Temp. °F.	Treatment		Sound	Decay	Break-down	Shriveling	Pitting	SI.	Scald			Market condition
		Oiled	paper							Med.	Bad.		
Stayman Winesap	31	No		6.6	1.3	5.3	1.3	0	27.6	36.8	21.1	Poor	
		Yes		66.6	2.6	9.0	0	1.3	20.5	0	0	Fair	
	50-36-31	No		4.5	1.5	1.5	0	(1.5)	26.9	37.2	26.9	Poor	
		Yes		96.8	0	1.6	0	(16.4)	1.6	0	0	Very good	
Average				43.6	1.4	4.4	0.4	4.8	19.2	18.5	12.0		
Stamared	31	No		41.4	1.1	(13.8)	3.4	0	26.4	12.6	2.3	Fair to poor	
		Yes		87.7	(1.2)	8.7	0	1.2	1.2	0	0	Fairly good	
	50-36-31	No.		30.5	1.4	5.6	4.2	11.1	20.8	16.7	9.7	Fair to poor	
		Yes		76.7	1.4	4.1	4.1	13.7	0	0	0	Good	
Average			59.1	1.6	8.3	2.9	6.5	12.1	7.3	3.0			
Scarlett	31	No		23.3	0	4.4	0	0	37.8	23.3	11.1	Fair to poor	
		Yes		84.7	3.3	1.1	1.1	0	9.8	0	0	Good	
	50-36-31	No		18.7	0	1.3	2.5	(1.3)	42.5	25.0	8.7	Fair to poor	
		Yes		82.8	1.2	3.7	2.5	(10.0)	1.2	0	0	Good	
Average			52.4	1.1	2.6	1.5	5.0	22.8	12.1	5.0			
No. 201	31	No		58.7	1.2	1.2	0	0	24.7	11.8	2.4	Fairly good	
		Yes		93.4	0	1.3	0	0	5.3	0	0	Very good	
	50-36-31	No		54.9	0	2.7	2.7	(1.4)	31.5	6.8	0	Fairly good	
		Yes		98.6	0	1.4	0	(1.4)	0	0	0	Very good	
Average			76.4	0.3	1.6	0.7	0.7	15.4	4.6	0.6			

1/ Also scalded and included in scald percentage.
 2/ Also decayed and included in decay percentage.
 3/ Also pitted and included in pitting percentage.



Table 6. Average total spoilage of Stayman Winesap and its sport during storage at 31°-32° and post ripening at 70°.

Variety	Total spoilage in			Average
	1940	1942	1946	
Stayman Winesap	---	50.9 <u>1/</u>	56.4 <u>1/</u>	53.7
Stamared	1.8	8.1	40.9 <u>1/</u>	16.9
Scarlett	1.1	6.6	47.6 <u>1/</u>	18.4
No. 201	8.0 <u>2/</u>	6.8 <u>2/</u>	23.5 <u>1/</u>	12.8

1/ Mostly scald

2/ Mostly breakdown

Comparisons of the storage quality of other bud sports of these varieties and of bud sports of other varieties are presented in H. T. & S. Office Report 137, 1944.

